

DESIGN FOR LONG FATIGUE LIFE IN FLEXIBLE CIRCUITS

5 ABSTRACT OF THE DISCLOSURE

A multiple layer flexible circuit possessing a longer fatigue life. The flexible circuit includes one or more high modulus patches that force its traces into compression during flexion. The moduli of these patches are determined based on the materials used in the construction of the flexible circuit. Lower moduli materials can be used in the construction of the conductive layers to decrease the required moduli of the high modulus patches. One embodiment configured to be bent around an imaginary bending axis uses high modulus patches to force the neutral plane of the flexible circuit into the outermost surface the layer of traces furthest from the bending axis. This configuration maximizes the fatigue life of the circuit.